

# **Green Roof Blocks Specifications**

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## **Green Roof Blocks Specifications**

**0001 Title of Invention**

Green Roof Blocks

**0002 Cross Reference to Related Applications**

There are no Cross References to Related Applications to declare.

**0003 Statement Regarding Federally Sponsored Research or Development**

This invention is not the subject of Federally Funded Research or Development, and has not received any federal funding.

**0004 Reference to Sequence Listing, a Table, or a Computer Program Listing**

Compact Disk Appendix

This Nonprovisional Utility Patent Application contains no Sequence Listing, Table, or Computer Program Listing Compact Disk.

**0005 Background of the Invention**

Green roofs, roof gardens, eco-roofs all refer to the planting of vegetation on the roof surface of building structures. The principle of green roofs has been widely used in Europe for several decades. Roof top vegetation substantially reduces storm water run off, solar heat gain, and thermal transfer through the roof. In addition, large vegetated surfaces help to replenish oxygen through photosynthesis. Though the benefits are many, the typical green roofs costs are several times that of most roofing systems. The high price of typical green roof construction emanates from costly waterproofing procedures, extensive drainage layers, soil of depths ranging from eight inches to twenty four inches, and additional required structural construction to support resulting increased weight. Repairs to the roofing membrane are extremely expensive due to the large quantities of material that must be moved to access the waterproofing layer. Soil based plant disease can quickly spread throughout the system requiring the complete replacement of the vegetation.

0006     Brief Summary of the Invention

Green Roof Blocks are sedum kamtschaticum plants housed in 24 inch square, self contained units. The containers can easily be placed on the roof providing quick and inexpensive installation of green roof vegetation. The system weight is between 12 and 18 pounds per square foot, well within the dead load capacity of most building roof structure. Each unit weighs between 50 and 75 pounds, depending on the level of water saturation, which can be easily moved to access the roof membrane for repair. In the event of soil based plant disease, contamination is contained within the unit allowing for the replacement of only the effected units. This simple roof greening methodology can be used in conjunction with typical roofing systems, on typical building structure, allowing building owners to realize the benefits and cost savings of a green roof for a fraction of the cost of typical green roof construction.

0007     Detailed Description of the Invention

This invention, Green Roof Blocks, is constructed in a completely original manner, using unique materials for the container and the growing medium. Green Roof Blocks are a self contained roof greening product made from the following components; organic soils, mineral particulate, Sedum Kamtschaticum plants, 22 gauge galvalume sheet metal, stainless steel screws, rubber composite roofing walk pad material. A container constructed of 22 gauge galvalume sheet metal sized 24 inches by 24 inches and 4 inches in depth, is filled with 80% mineral (haydite) and 20% organic growing medium, and four sedum kamtschaticum seedlings are planted six inches from each side. The box construction is fabricated from flat sheet metal material cut from a 35.5 inch square section. Though the product is prepared for fabrication utilizing a custom machined punch press to cut the desired shape, the following procedure can be used to cut the material by hand using a pair of quality tin snips. Lines at one inch, one and three quarter inches, and five and three quarter inches are etched from all four edges.

The four corners are cut off at a 45 degree angle starting at six and three quarter inches from each corner. One side of the line etched at five and three quarter inches is cut to the perpendicular intersection of the adjacent line etched at five and three quarter inches. This step is repeated on one line only for all four sides. A one inch tab is etched along the side of the five and three quarter inch line that was not previously cut in the prior step. This tab extends from the intersection of the five and three quarter inches lines to the one and three quarter inches line. The short ends of the tabs are trimmed at an angle to the intersection of the five and three quarter inches lines and to the intersection of the five and three quarter inches lines and the one and three quarter inches lines. Four final three quarter inch long cuts are made along the five and three quarter inches lines to the angled tab cut made in the previous step. The container is now ready for bending on a sheet metal box forming brake. Beginning at each outer etched line, bends are made as follows. The one inch line is bent to ninety degrees, the one and three quarter inch line is bent in the opposite direction to the capacity of the brake. This bend is then squeezed in the clamping head of the brake to form 180 degree fold. These steps are repeated for all four sides. The bends along the five and three quarter inches lines are then formed to 90 degrees in the direction of the one and three quarter inch bend. These four bends form the sides of the container. The one inch tabs are then folded around each corner and fastened using two one inch self tapping stainless steel screws. Three, one eighth inch diameter drainage holes, one at each end and one in the center, are then drilled along the bottom of each side just above the bend. Five inch by five inch sections of rubber composite roofing walk pad are the fastened to the bottom of the container. One pad is positioned at each corner extending beyond the container sides one half inch on the outer edges. A fifth pad is positioned in the center of the container. The pads are fastened with the dimples facing downward using four one inch, self tapping, stainless steel screws per pad. The screws are positioned between dimples and counter sunk into the walk pad material. The growing medium is then filled to a depth of three and one half inches and the seedlings are planted burying the roots and covering the stem by one inch.